ABSTRACT

Title:

Influence of alcohol on the contractile properties of skeletal muscle

Objectives:

To identify the impact of alcohol to contractile attribute (Tc – contraction time and Dm – maximal displacement) *m. rectus femoris.*

Method:

The diploma thesis corresponds with empirically-theoretical based study. The research has a character of a quasiexperiment. The measured participants were consisted of students (n = 8) of Military Department (VO) and students (n = 3) of civilian (TVS) of attending full-time studies at the Faculty of Physical Education and Sport (FTVS) of Charles University (UK) in Prague. There were used the methods of descriptive statistics to describe it - rate position (arithmetic mean) and a measure of variability (standard deviation). Contractile attributes (Tc, Dm) were measured on the device TGM 100 at an electricity current intensity 80 mA. To analyse the normality of data was used Kolmogorov-Smirkov's test. For further calculations was used parametric method one-way ANOVA for repeated measurements were used statistical significance. For statistical processing was used computer program IBM SPSS Statistics 22 and the individual dose of alcohol relative to body weight was administered in three rounds at 20 minute intervals.

Results:

The average Tc was 33.23 ± 3.45 ms for the first time TMG measurement (without alcohol), 31.77 ± 4.78 ms for the second time, 32.28 ± 4.66 ms for the third time, and the fourth time 33,43 ± 5,40 ms. The average Dm was 8.56 ± 1.43 mm for the first time TMG measurement (without alcohol), the second was 7.99 ± 1.78 mm, the third time was 8.20 ± 1.81 mm and the fourth time of 8.21 ± 2.25 mm. The highest difference in both measured parameters - Tc and Dm, we noticed after the first dose of alcohol between the first and second tensiomographic measurements. Although the difference was apparent, it was not statistically significant (p_{tc} = 0.482, p_{dm} = 0.457). While Tc rose further than the intake diameter after further doses of alcohol, the parameter Dm stabilized.

Keywords:

alcohol, skeletal muscle, sport, tensiomography, military physical education